

Fractions-Four operations

Diagnostic tasks



5.6 Lists:

common factors of 2 to 3 numbers
common multiples of 2 to 3 numbers

Determines:

the Highest/Greatest Common Factor (HCF/GCF) of 2 to 3 numbers

Lowest Common Multiples (LCM) of 2 to 3 numbers

1. List the common factors of:

a) 12, 24

Factors of 12: 1, 2, 3, 4, 6, 12

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

Common factors of 12 and 24: 1, 2, 3, 4, 6, 12

The highest common factor (HCF) of 12 and 24: 12

2. List the first 5 multiples of 6 and 18:

Multiples of 6: 6, 12, 18, 24, 30

Multiples of 18: 18, 36, 54, 72, 90

The least common multiples of 6 and 18: 18

$$\begin{aligned} & 84 \times \left(\frac{3}{7} - \frac{1}{4} \right) \\ &= 84 \times \frac{12-7}{28} \\ &= 84 \times \frac{5}{28} \\ &= 15 \end{aligned}$$

5.10 Multiplies fractions, performs mixed addition, subtraction and multiplication of fractions and solves related problems

6. Calculate the following:

a) $\frac{3}{8} \times 5 = \frac{15}{8} = 1\frac{7}{8}$

b) $6 \times \frac{5}{12} = \frac{5}{2} = 2\frac{1}{2}$

c) $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$

d) $\frac{2}{15} \times \frac{5}{6} = \frac{2}{9}$

e) $1\frac{4}{9} \times 2 = \frac{13}{9} \times 2 = \frac{26}{9} = 2\frac{8}{9}$

f) $1\frac{2}{7} \times 2\frac{1}{3} = \frac{9}{7} \times \frac{5}{3} = \frac{15}{7} = 2\frac{1}{7}$

g) $2\frac{1}{5} \times 2\frac{1}{4} + \frac{1}{2} = \frac{11}{5} \times \frac{9}{4} + \frac{1}{2} = \frac{99}{20} + \frac{1}{2} = \frac{99}{20} + \frac{10}{20} = \frac{109}{20} = 5\frac{9}{20}$

h) $2\frac{1}{5} + 1\frac{3}{4} \div \frac{1}{2} = 2\frac{1}{5} + \frac{7}{4} \times 2 = 2\frac{1}{5} + 3\frac{1}{2} = 2\frac{2}{10} + 3\frac{5}{10} = 5\frac{7}{10}$

7. There are 84 marbles. $\frac{3}{7}$ of them are yellow. $\frac{1}{4}$ of them are red. How many fewer red marbles are there than yellow marbles?

$$\begin{aligned} & 84 \times \frac{3}{7} - 84 \times \frac{1}{4} \\ &= 36 - 21 \\ &= 15 \end{aligned}$$

or yellow = $84 \times \frac{3}{7} = 36$
red = $84 \times \frac{1}{4} = 21$
 $\therefore 36 - 21 = 15$ fewer red marbles

there are 15 fewer marbles

5.11 Divides fractions and uses correct order of operation when performing four operations of fractions and solves related problems

8. Calculate the following:

a) $2 \div \frac{1}{5} = 2 \times \frac{5}{1} = 10$

b) $4 \div \frac{2}{3} = 4 \times \frac{3}{2} = 6$

c) $\frac{5}{6} \div 2\frac{1}{2} = \frac{5}{6} \div \frac{5}{2} = \frac{5}{6} \times \frac{2}{5} = \frac{1}{3}$

d) $3\frac{1}{3} \times 2\frac{2}{5} \div 1\frac{1}{4} = \frac{10}{3} \times \frac{12}{5} \times \frac{4}{8} = \frac{32}{5} = 6\frac{2}{5}$

9. Mr Wong eats $\frac{3}{4}$ kg of rice in 9 days. How many kilograms of rice does he eat each day on average?

$$\frac{3}{4} \div 9 = \frac{3}{4} \times \frac{1}{9} = \frac{1}{12}$$

He eat $\frac{1}{12}$ kg each day on average

10. $\frac{3}{4}$ kg of pork can be bought with \$25 $\frac{1}{2}$. How much should Mrs Chung pay for 1 $\frac{1}{2}$ kg of pork?

$$\begin{aligned} & 25\frac{1}{2} \div \frac{3}{4} \times 1\frac{1}{2} \\ &= \frac{51}{2} \times \frac{4}{3} \times \frac{3}{2} \\ &= 51 \end{aligned}$$

Mrs Chung should pay \$51



5.9 Adds and subtracts fractions with different denominators and solves related problems

3. Calculate the following:

a) $\frac{1}{5} + \frac{3}{10} = \frac{2}{10} + \frac{3}{10} = \frac{5}{10} = \frac{1}{2}$

d) $\frac{3}{5} - \frac{2}{5} = \frac{1}{5}$

g) $4\frac{1}{5} - 1\frac{3}{4} = 3\frac{24}{20} - 1\frac{15}{20} = 2\frac{9}{20}$

b) $1 + \frac{1}{7} = 1\frac{1}{7}$

e) $\frac{4}{5} - \frac{3}{10} = \frac{8-3}{10} = \frac{5}{10} = \frac{1}{2}$

h) $2\frac{1}{5} + 1\frac{3}{4} - \frac{1}{2} = 3\frac{4+15-10}{20} = 3\frac{9}{20}$

c) $1\frac{1}{5} + 4\frac{3}{4} = 5\frac{19}{20}$

f) $1 - \frac{1}{7} = \frac{7-1}{7} = \frac{6}{7}$

i) $2\frac{1}{5} - 2\frac{1}{4} + \frac{1}{2} = 2\frac{4}{20} + \frac{10}{20} - 2\frac{5}{20} = \frac{14-5}{20} = \frac{9}{20}$

$= 1\frac{4}{20} + 4\frac{15}{20} = 5\frac{19}{20}$

4. $6\frac{3}{4}$ L of orange juice is left after $1\frac{4}{5}$ L was drunk. How many liters of orange juice was there originally?

$$6\frac{3}{4} + 1\frac{4}{5}$$

$$= 6\frac{15}{20} + 1\frac{16}{20} = 7\frac{31}{20} = 8\frac{11}{20}$$

There was $8\frac{11}{20}$ L of juice originally

5. I had \$25 $\frac{1}{5}$ and spent \$12 $\frac{3}{5}$ on pencils. Then Dad gave me \$4 $\frac{1}{2}$. How much

money do I have now?

$$25\frac{1}{5} - 12\frac{3}{5} + 4\frac{1}{2}$$

$$= 24\frac{12}{10} - 12\frac{6}{10} + 4\frac{5}{10} = 16\frac{11}{10} = 17\frac{1}{10}$$

I have \$17 $\frac{1}{10}$ now.